

XLVIII.—On the Origin and Affinities of the Acari of the Family Demodecidae, with Brief Remarks on the Morphology of the Group. By STANLEY HIRST.

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THE mites of the family Demodecidae are regarded by most acarologists as an isolated group, and, owing to the extreme elongation of the body and annulation of the abdomen, they are usually placed with the Tetrápoda (Eriophyidae), a family also exhibiting these peculiarities, but otherwise very dissimilar in structure. Oudemans has hinted at their derivation from the Sarcoptidae (Astigmata) parasitic in mammals, and has also drawn attention to the rather close resemblance of *Demodex* to the Cheletid mite *Psorergates* belonging to the order Prostigmata. There can be little doubt that the Demodecidae are closely related to the Cheletidae, and probably are an offshoot from that family. The male sexual organ opening is dorsal in position in *Demodex*, being placed well forward on the cephalothorax, and this is also well known to be the case in the Cheletidae, notably in the genus *Myobia* etc. The penis is a slender elongated structure of considerable size in both these families, and is attached by the posterior end, the anterior end being directed forwards and upwards. The mouth-parts of *Demodex* are very like those of *Psorergates*, and in the former genus a pair of minute ventral stigmata are present at the base of the capitulum. The respiratory system is said to be absent in the family Demodecidae, but it is improbable that this is really the case, and I have seen internal tracheae of a very similar type to those present in Cheletidae. The nymphs of the genus *Demodex* differ from the adults in important details of structure, being provided with simple lateral plates or epimera (each of which bears a pair of tubercles furnished with very minute denticles) instead of the fully developed legs of the mature form. Four central pairs of curious epidermal discs bearing minute spines on their posterior margin are also present on the ventral surface of the body. Further details are given in my revision of the family Demodecidae, which will be sent to press shortly.